

**INTEGRATED STATOR-AXLE FOR IN-WHEEL MOTOR OF AN  
ELECTRIC VEHICLE**

**Abstract of the Disclosure**

One or more wheels of an electrically powered vehicle contains a motor rotor and a motor stator that is mounted on an integrated structure having a motor stator mounting element portion and wheel axle portion on each side thereof. The structure is fabricated from a unitary non-ferromagnetic substance.

- 5     A rotor housing is journaled to the axle portion on both sides of the motor stator mounting element via bearings. A wheel assembly is mounted on the rotor housing thereby to be driven by the rotor. Forced-air cooling is provided through a hollow central passage. A plug separates the passage into two distinct sections, the inlet and the outlet. A plurality of cavities, provided with heat
- 10    exchanger surfaces, are contained within the stator mounting element portion. Channels at each end of each cavity extend in the radial direction into the central passage. Cooling air enters from one end of the central passage, is directed through the inlet channels, the cavities and outlet channels before exiting through the opposite end of the central passage. Additional channels
- 15    provide wire access to the motor stator.